UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS: WELL LOG ____ ELECTRIC LOGS ____ FILE X ____ WATER SANDS ____ LOCATION INSPECTED ____

DATE FILED	4-6-92
LAND: FEE & PATENTED	STATE LEASE NO. ML-37387 · PUBLIC LEASE NO. · INDIAN
DRILLING APPROVED	6-22-92
SPUDDED IN	
COMPLETED	PUT TO PRODUCING
INITIAL PRODUCTION	Confidential
GRAVITY A.P.I.	
GOR	
PRODUCING ZONES	
TOTAL DEPTH	
WELL ELEVATION	
DATE ABANDONED	9-1-94
FIELD	WILDCAT
UNIT	MATT'S SUMMIT
COUNTY	CARBON
WELL NO.	MATT'S SUMMIT STATE B-1 · API NO. 43-007-30155
LOCATION	845' FSL FT. FROM (N) (S) LINE, 1261' FEL FT. FROM (E) (W) LINE. SW SE 1/4 - 1/4 SEC. 10

TWP.	RGE.	SEC.	OPERATOR	TWP.	RGE.	SEC.	OPERATOR
				12S	9E	10	ANADARKO PETROLEUM CORP.

ANADARKO PETROLEUM CORPORATION 16801 GREENSPOINT PARK DRIVE SUITE 200 • PO BOX 4499 • HOUSTON TEXAS 77210 4499

Anadarko

April 2, 1992

Utah Board of Oil, Gas and Mining
Suite 350, 3 Triad Center
355 West North Temple
Salt Lake City, UT 84180-1203

RE: Application for Permit to Drill
Matt's Summit State No. B-1
Carbon County, Utah

Gentlemen:

Enclosed in duplicate is Form 3, "Application for Permit to Drill" with supporting information for the Matt's Summit State Well No. B-1 in Carbon County, Utah.

If you should have any questions regarding this application, please call either myself or Mr. John Broman at 713/875-0858.

Sincerely,

Susan Hathcock
Coordinator, Regulatory Affairs & Safety

SH:me

Enclosures

cc: Bureau of Land Management
Moab District
P. O. Box 970
Moab, UT 84532

Bureau of Land Management
Price Resource Area
900 North, 700 East
Price, UT 84501

FILE: MSSB-1.APD

FORM 3

ST OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5 Lease Designation and Serial No: ML-37387
6 If Indian Allottee or Tribe Name: ----
7 Unit Agreement Name: Matt's Summit
8 Farm or Lease Name: Matt's Summit State
9 Well No: B-1
10 Field and Pool or Wildcat: Wildcat 001
11 QQ, Sec., T., R., M., or Blk and Survey or Area: SW/SE Sec. 10, T12S, R9E
12 County or Parrish: Carbon
13 State: Utah

1a Type of Work: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b Type of Well: Oil Well [ ] Gas Well [ ] Other Coalbed Methane Single Zone [ ] Multiple Zone [ ]

2 Name of Operator: Anadarko Petroleum Corporation

3 Address of Operator: P. O. Box 4499, Houston, TX 77210-4499

4 Location of Well (Report location clearly and in accordance with any State requirements *)
At surface: 845' FSL & 1261' FEL of Sec. 10 ~~SW/SE~~ SE/SE
At proposed prod zone: Same

14 Distance in miles and direction from nearest town or post office*: Approximately 7 miles north of Helper, Utah

15 Distance from proposed* location to nearest property or lease line ft (Also to nearest drlg line if any): 475'

16 No of acres in lease: 1429.84

17 No of acres assigned to this well: 160

18 Distance from proposed location* to nearest well, drilling completed or applied for, on this lease ft: N/A

19 Proposed depth: 5400' MVDCL

20 Rotary or cable tools: Rotary

21 Elevations (Show whether DF RT, GR etc.): GR. 7906.5'

22 Approx date work will start*: July 1, 1992

23 PROPOSED CASING AND CEMENTING PROGRAM

Size of Hole	Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
12-1/4"	8-5/8"	20#	400'	200 cu.ft.
7-7/8"	5-1/2"	15.5#	5400'	300 cu ft.

CONFIDENTIAL

The following items are attached to this APD.

1. Drilling Program with BOP Schematic
2. Survey Plat

TECHNICAL REVIEW
Engr. [illegible] 6/22/92
Geol. [illegible] 6/22/92
Surface [illegible] 6/22/92

RECEIVED
APR 06 1992
DIVISION OF OIL GAS & MINING

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths Give blowout preventer program, if any

24. I hereby certify that this report is true and complete to the best of my knowledge

Signed Susan Hathcock Title Coordinator, Regulatory Affairs & Safety Date 4/2/92
Susan Hathcock

(This space for Federal or State office use)

API NO 43-007-30155 Approval Date ----

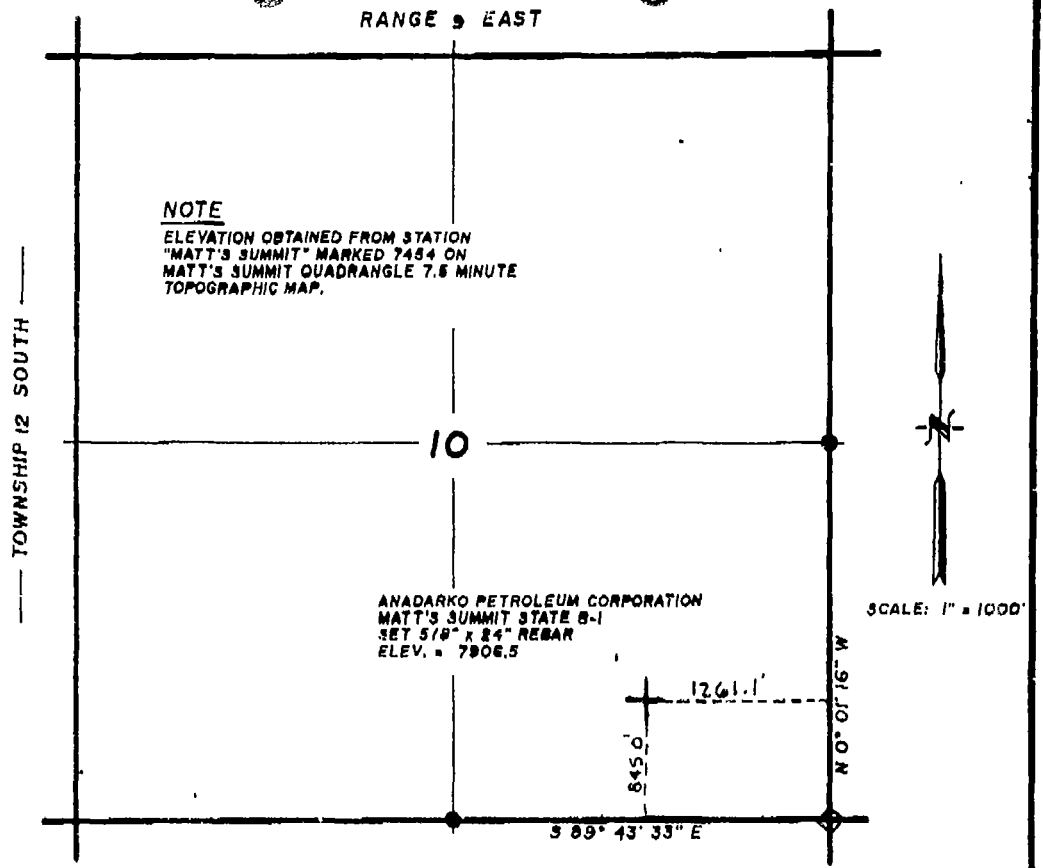
APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 6-22-92
BY: JM Matthews

Approved by ---- Title ----
Conditions of approval if any

WELL SPACING 649-2-3

*See Instructions On Reverse Side

(3/89)



REGISTERED LAND SURVEYOR
NO 3115
EVAN E HANSEN
STATE OF UTAH

REGISTERED PROFESSIONAL ENGINEER
No. 3354
EVAN E. HANSEN
STATE OF UTAH

BASIS OF BEARING

BASIS OF BEARING S 89° 53' W, OBTAINED FROM G.L.O. PLAT DATED OCTOBER 30, 1915 BETWEEN THE NORTHWEST CORNER AND THE NORTH QUARTER CORNER OF SECTION 14, TOWNSHIP 12 SOUTH, RANGE 9 EAST, SALT LAKE BASE AND MERIDIAN.

LEGEND

◇ FOUND BRASS CAP SECTION CORNER

⊕ FOUND BRASS CAP QUARTER CORNER

SURVEYOR'S CERTIFICATE

I, EVAN E. HANSEN, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR AND PROFESSIONAL ENGINEER HOLDING CERTIFICATES NO 3115 AND NO. 3354 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT I HAVE MADE A SURVEY OF THE TRACT OF GROUND SHOWN AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE

Evan E. Hansen
EVAN E. HANSEN

NOV. 19, 1991
DATE

Empire Engineering
1665 E. SAGEWOOD RD PRICE, UTAH 84501

ANADARKO PETROLEUM CORPORATION
MATT'S SUMMIT STATE B-1

Drawn By: TH	Approved By: EEH	Drawing No. EEOG-113
Date: 11-29-91	Scale: 1" = 1000'	

OPERATOR [illegible] DATE [illegible]

WELL NAME [illegible]

SEC SESE 19 T [illegible] R [illegible] COUNTY [illegible]

43-027-30155
API NUMBER

[illegible]
TYPE OF LEASE

CONFIDENTIAL

CHECK OFF:

PLAT

BOND

NEAREST WELL

LEASE

FIELD

POTASH OR OIL SHALE

PROCESSING COMMENTS:

Included in unit per [illegible]

[illegible] Permit

RDCC [illegible]

[illegible]

APPROVAL LETTER:

SPACING: R615-2-3 [illegible] UNIT

R615-3-2

CAUSE NO. & DATE

R615-3-3

STIPULATIONS:

1- Water Permit

[illegible] St Lands

2. Reserve pit is to be inspected and evaluated prior to the introduction of fluids into the pit.

0218T

DRILLING PROGRAM
TO ACCOMPANY APPLICATION FOR PERMIT TO DRILL
STATE OF UTAH

Company: Anadarko Petroleum Corp. Well: Matt's Summit State B-1

Location: SW SE Sec. 10-T12S-R9E Lease No: ML-37387 (State of Utah)

845' FSL & 1261' FEL of Sec. 10

Carbon County, Utah Surface Elevation: 7906.5'

A. Estimated Tops of Important Geologic Markers:

Flagstaff	Surface
North Horn	1150'
Price River	2460'
Castlegate Sandstone	3515'
Blackhawk Coal	4550'
Spring Canyon Sandstone	5040'

B. Estimated Depth at Which Water, Oil, Gas, or Other Mineral-Bearing Zones are expected to be encountered:

Gas-bearing Blackhawk coals are expected to be encountered from 4550'-5140'.

All fresh water zones and prospectively valuable mineral zones encountered during drilling will be recorded by depth and adequately protected. All oil and gas shows will be tested to determine commercial potential.

C. Pressure Control Equipment:

An 11", 3000 psi WP double gate hydraulic BOP with pipe rams and blind rams will be installed on the 8-5/8" casing head. The BOP stack will be tested to 400 psi prior to drilling below surface casing. Operational checks will be made daily or on trips. A BOP schematic is shown on attached Exhibit "A".

The BOP system will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical working order. This inspection will be recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs.

D. Casing Program

Surface Casing - 8-5/8" casing will be set at approximately 400'.

Production Casing - 5-1/2" casing will be set at approximately 5400' if well is to be completed.

	Size	Wt./Ft.	Grd.	Thrd.	Condition
Surface	8-5/8"	20.0	H-40	8rd	New
Production	5-1/2"	15.5	K-55	8rd	New

Casing Design Factors

The safety factors on casing strings will equal or exceed the following values:

Collapse	1.0
Joint Strength	1.6
Burst	1.33

Cement Program

Surface - Cement will be circulated. Casing will be cemented with approximately 200 cu. ft. of API Class 'G' cement.

Production- Casing will be cemented with approximately 300 cu. ft. of API Class 'G' cement. The actual cement volume will be based upon hole depth and gauge and will be determined from logs. Cement will be circulated to the surface to protect possible fresh water zones.

Additional additives will be used to retard the cement, accelerate the cement, control lost circulation, or control fluid loss. All cementing will be done in accordance with API cementing practices.

E. Mud Program and Circulating Medium:

Fresh water circulated through the reserve pit will be used for drilling the 12-1/4" surface hole to 400'. A low solids, non-dispersed mud system with funnel viscosity of 35-40 seconds, API water loss of 10-20 cc/30 minutes, and 8.8-9.2 ppg mud weight will be used for drilling from below surface pipe at 400' to TD.

The mud system will be visually monitored.

A truck-mounted air drilling rig may be used to drill the surface hole to 400' and to pre-set the surface casing

before moving a drilling rig on location to drill the rest of the hole to TD.

F. Coring, Logging and Testing Program:

a. Conventional coring in the Blackhawk Coal interval (4550'-5140') may be performed, depending upon shows and hole conditions.

b. DST's may be run depending upon shows.

c. The following logging program is planned for the interval from surface pipe to TD (400'-5400' est.):

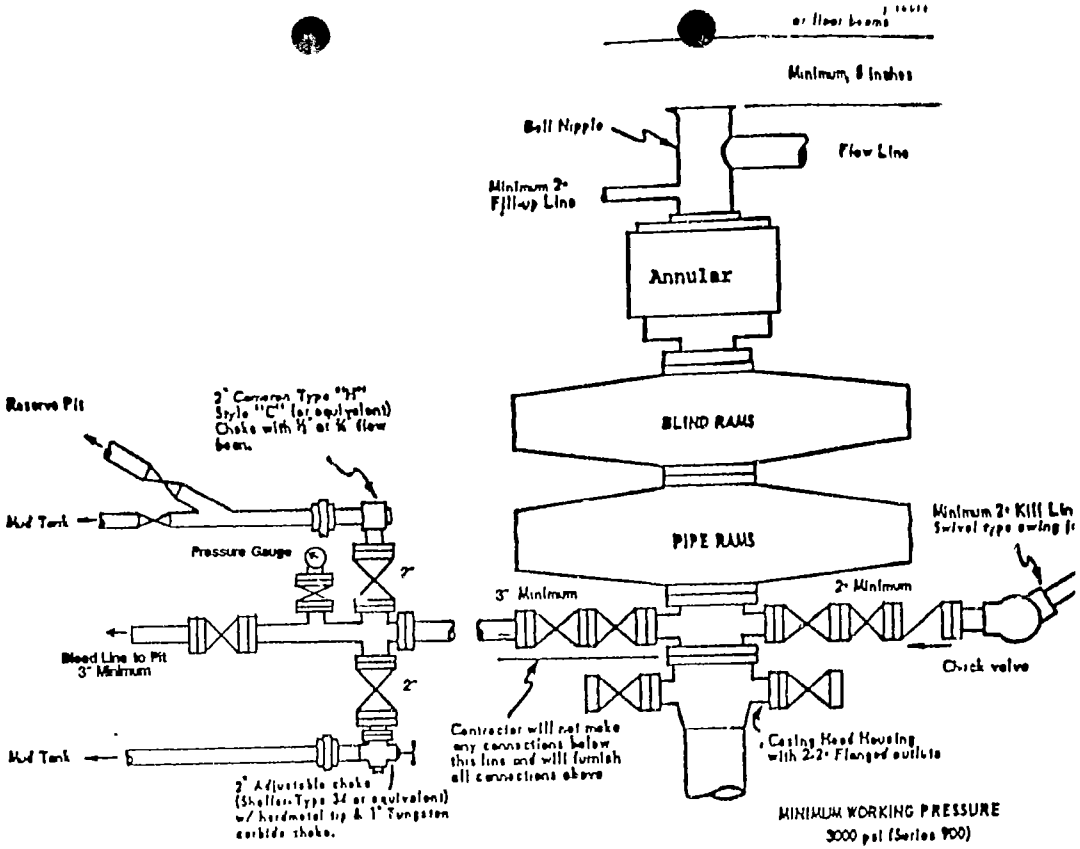
1. DIL
2. LDT-CNL-ML-NGT-SDT over prospective intervals

d. A mud logging unit with chromatograph will be used from surface casing to TD.

e. Productive zones will be swab tested. Water produced during testing will be contained in the temporary reserve pit. All possible oil will be stored and sold.

G. Abnormal Conditions and Potential Hazards:

Abnormal conditions such as abnormal temperatures or pressures are not anticipated. Potential hazards such as H_2S are also not anticipated.



Anadarko Petroleum Corporation

EXHIBIT A

MINIMUM BLOWOUT PREVENTER
REQUIREMENTS - NORMAL
PRESSURE (SHALLOW) SERVICE

DRILLING LOCATION ASSESSMENT

State of Utah
Division of Oil, Gas and Mining

OPERATOR: ANADARKO PETROLEUM WELL NAME: MATT'S SUMMIT B-1
SECTION: 10 TWP: 12S RNG: 9E LOC: 845 FSL 1261 FEL
QTR/QTR SW/SE COUNTY: CARBON FIELD: WILDCAT
SURFACE OWNER: REED MARTINEAU
SPACING: 460 F SECTION LINE 460 F QTR/QTR LINE 920 F ANOTHER WELL
GEOLOGIST: BRAD HILL DATE AND TIME: 6/11/92 11:00

PARTICIPANTS: Chuck Medberry-Anadarko

REGIONAL SETTING/TOPOGRAPHY: The proposed location is on the western edge of the Book Cliffs physiographic province. It is located on a gentle slope which is part of a larger dipslope on the Flagstaff Limestone.

LAND USE:

CURRENT SURFACE USE: Domestic grazing and wildlife habitat.

PROPOSED SURFACE DISTURBANCE: The proposed pad is rectangular in shape with approximate dimensions of 300'X 175' with an, 100'X 65', extension for the reserve pit. Access will be from an existing road with an additional .25 miles of newly constructed road.

AFFECTED FLOODPLAINS AND/OR WETLANDS: None

FLORA/FAUNA: Oak, Sage, Serviceberry, Juniper, Bunch grass, Silky Lupine, Indian Ricegrass, Milkvetch, Quaking Aspen, Thistles, Snowberry/Cows, Deer, Elk, Rabbits, Rodents, Birds

ENVIRONMENTAL PARAMETERS

SURFACE GEOLOGY

SOIL TYPE AND CHARACTERISTICS: Clayey loam with abundant limestone fragments.

SURFACE FORMATION & CHARACTERISTICS: Flagstaff Limestone

EROSION/SEDIMENTATION/STABILITY: No active erosion or sedimentation at present. Location should be stable.

PALEONTOLOGICAL POTENTIAL: None observed.

SUBSURFACE GEOLOGY

OBJECTIVES/DEPTHS: Blackhawk-4550'

ABNORMAL PRESSURES-HIGH AND LOW: None anticipated.

CULTURAL RESOURCES/ARCHAEOLOGY: NA

CONSTRUCTION MATERIALS: Onsite materials will be used for construction.

SITE RECLAMATION: As per land owner instructions.

RESERVE PIT

CHARACTERISTICS: A rectangular reserve pit will be constructed with approximate dimensions of 100'X 65'X 10'.

LINING: To be evaluated after construction to determine if a liner is required.

MUD PROGRAM: 0-400'-fresh mud; 400'-TD-low solids, non-dispersed mud.

DRILLING WATER SUPPLY: Not specified.

STIPULATIONS FOR APD APPROVAL

The reserve pit is to be inspected after construction to determine if a synthetic liner is required.

ATTACHMENTS
Photographs will be placed on file.

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Timothy R. Provan
Division Director

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Southeastern Region
455 West Railroad Avenue
Price, Utah 84501-2599
801-637-3310

April 21, 1992

Mr. Robert M. Anderson
Heitzman Drill-Site Services
P.O. Box 3579
Casper, Wyoming 82602

Dear Bob:

The Division of Wildlife Resources (DWR) appreciates your letter of March 18 requesting our input on the development of an Environmental Assessment for Anadarko Petroleum Corporation's Matt's Summit Coalbed Methane Project. The following are DWR's comments, concerns, and recommendations regarding this project. These comments relate to full field development, as well as the exploratory phase of this project.

A variety of wildlife species inhabits the proposed project area. Impacts of this project vary according to species. Critical and high priority deer and elk habitats are found within the project boundaries. Impacts to these species will be displacement from traditional ranges due to disturbance from drilling activities. They will be forced to occupy less favorable habitats or habitats already occupied. In either case, vigor and reproductive success of these populations will decline. These species are most vulnerable to disturbances during calving, fawning, and winter seasons. Calving and fawning habitat is located on the southern portion of the project area. Critical winter habitat extends from the central portion of the area to the northern boundary. DWR suggests that no drilling activity takes place from 4/15 to 7/5 on the southern half of the project area and from 12/1 to 4/15 on the northern half of the project area.

Construction of barriers (fences, pipelines, conveyer systems and canals) that inhibit big game migrations to and from seasonal ranges must not be allowed. Fence specifications should meet existing criteria for height and design for livestock and big game. Enclosed is a copy of fence specifications that will enhance safety for wildlife.

Mr. Robert M. Anderson April 21, 1992

As you know, the raptor survey conducted on March 25 revealed one stick nest in the NW1/4SW1/4 of Section 10. The activity of this nest can not be determined until later this spring. However, a 0.5 mile buffer zone around this nest does not include any of the proposed wells. This nest should be monitored to determine activity and what species utilizes this nest so that future planning can take this into consideration. Impacts to raptors of this exploratory project should not be significant. Full field development may cause conflict with this existing nest. Additional raptor surveys will need to be conducted prior to full field development.

The proposed project area supports numerous nongame mammals and bird species. Many of these make up the prey base for raptors and other carnivores found in this area. Due to the small home range of these small mammals and birds, any destruction of habitat is significant. Habitat destruction associated with drilling and road construction should be avoided where possible. Only necessary construction should be allowed.

Sage grouse inhabit the entire project area. No breeding leks are known to occur within project boundaries. However, leks are located within two miles of the project boundaries. Areas within a two mile radius of breeding leks are used for nest and brood habitat. This means that portions of the project area would be used as nest/brood habitat. Sage grouse have a limited distribution in southeastern Utah. The Park's population represents one of the few opportunities in this area to hunt or view sage grouse. Loss of this population would be significant. DWR suggests that activities be restricted from 3/15 to 6/30 in those areas of the project within two miles of a lek to minimize impacts to nesting sage grouse. These areas would likely include the north and east edges of the project area.

All water sources in the area are crucial to aquatic and terrestrial wildlife. Instream flows associated with perennial and intermittent drainages, as well as seep and springs, must be maintained at suitable levels for wildlife drinking water, wetland ecosystem maintenance, and fisheries maintenance. Actions resulting in a 50% or more reduction in available daily flow to wildlife should be disallowed. Water discharged into drainages must meet water quality specifications and should not significantly change instream water temperature. Water quality and quantity must not be negatively affected by actions associated with this project. Activities resulting in depletion of flows to the Colorado River Basin could necessitate a remittance to the U.S. Fish and Wildlife Service for recovery management of endangered species.

Surface disturbance in riparian zones should be avoided. Buffer zones should be established to protect riparian vegetation associated with perennial and intermittent streams, seeps, and springs. Riparian areas provide critical habitat for a wide variety of wildlife species and should be protected from disturbances associated with this project. Any disturbance to riparian vegetation that does occur will require revegetation.

Surface disturbance activities resulting in loss of habitat should be avoided or minimized. Unavoidable habitat disturbance will require mitigation. Short term projects, those that can be revegetated within the first growing season following commencement of the project, less than ten acres in size will usually only require revegetation and impact avoidance measures. Short term projects exceeding ten acres would require additional mitigation requirements. Surface disturbing impacts of any size which last beyond the first growing season following commencement of the project are viewed as long term and require significant mitigation. "On-site, in-kind, one-for-one" mitigation is preferred. If there are no other alternatives, "off-site or out-of-kind" mitigation can be negotiated.

Reclamation projects need to include closing and revegetating any roads constructed in conjunction with the project. Unnecessary existing roads in critical habitat should also be considered for closure and reclamation.

Reclamation projects should occur as soon after completion of the project as possible and must be designed to enhance the local area's wildlife habitat. The basic life requirements of wildlife (food, water, cover, and space) should be considered. Revegetation prescriptions must address terrain and soil characteristics and the species adaptability to the site. Seed purity, viability, seedbed preparation requirements, local precipitation and planting dates must also be considered. Revegetated areas should be protected from livestock grazing until establishment has occurred. A minimum of six species each of grasses, forbs and shrubs should be included in the plantings. The enclosed revegetation lists should be of assistance as reclamation for this project is planned.

Specific mitigation and reclamation measures can be recommended when the degree of impacts is determined and specific sites identified. Road closures, water developments, erosion control structures, grazing management, and vegetation treatments are some on-site possibilities. Long term impacts and cumulative

Mr. Robert M. Anderson April 21, 1992

impacts associated with Cockrell Oil's gas field development may require off-site habitat acquisition and improvement. Cumulative impacts of these two projects will be significant and must be considered.

We appreciate the opportunity to provide comments at this stage of the project. Maps provided to you for the Cockrell EA should contain the habitat classification for elk, deer, moose and sage grouse. If you have any questions or if we can be of further assistance, please contact Ken Phippen, Regional Wildlife Manager (637-3310).

Sincerely,

Miles Moretti
Regional Supervisor

Copy: Ralph Miles, DWR
Mark Bailey, BLM

SR/lcl

Enclosures

Form 9

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

6. Lease Designation and Serial Number: ML-37387

7. Indian Allottee or Tribe Name: ----

8. Unit or Communitization Agreement: Matt's Summit

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells. Use APPLICATION FOR PERMIT — for such proposals.

1 Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other (specify) Coalbed Methane

9. Well Name and Number: Matt's Summit State #B-1

2 Name of Operator: Anadarko Petroleum Corporation

10 API Well Number: Pending

3 Address of Operator: P. O. Box 4499, Houston, TX 77210-4499

4. Telephone Number: 713/875-0858

11 Field and Pool, or Wildcat: Wildcat

5 Location of Well
Footage : 845' FSL & 1261' FEL of Sec. 10 SE/SE
QQ, Sec, T., R., M. : Sec. 10, T12S, R9E
County : Carbon
State : UTAH

12. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
☐ Abandonment	☐ New Construction	☐ Abandonment *	☐ New Construction
☐ Casing Repair	☐ Pull or Alter Casing	☐ Casing Repair	☐ Pull or Alter Casing
☐ Change of Plans	☐ Recompletion	☐ Change of Plans	☐ Shoot or Acidize
☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☐ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ Other	
☒ Other New Location Plat			
Approximate Date Work Will Start		Date of Work Completion	

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form

* Must be accompanied by a cement verification report

13 DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Attached is a revised location plat to be included with our application for permit to drill submitted on 4/2/92. The well was spotted in the wrong QQ section.

RECEIVED
MAY 04 1992
DIVISION OF OIL, GAS & MINING

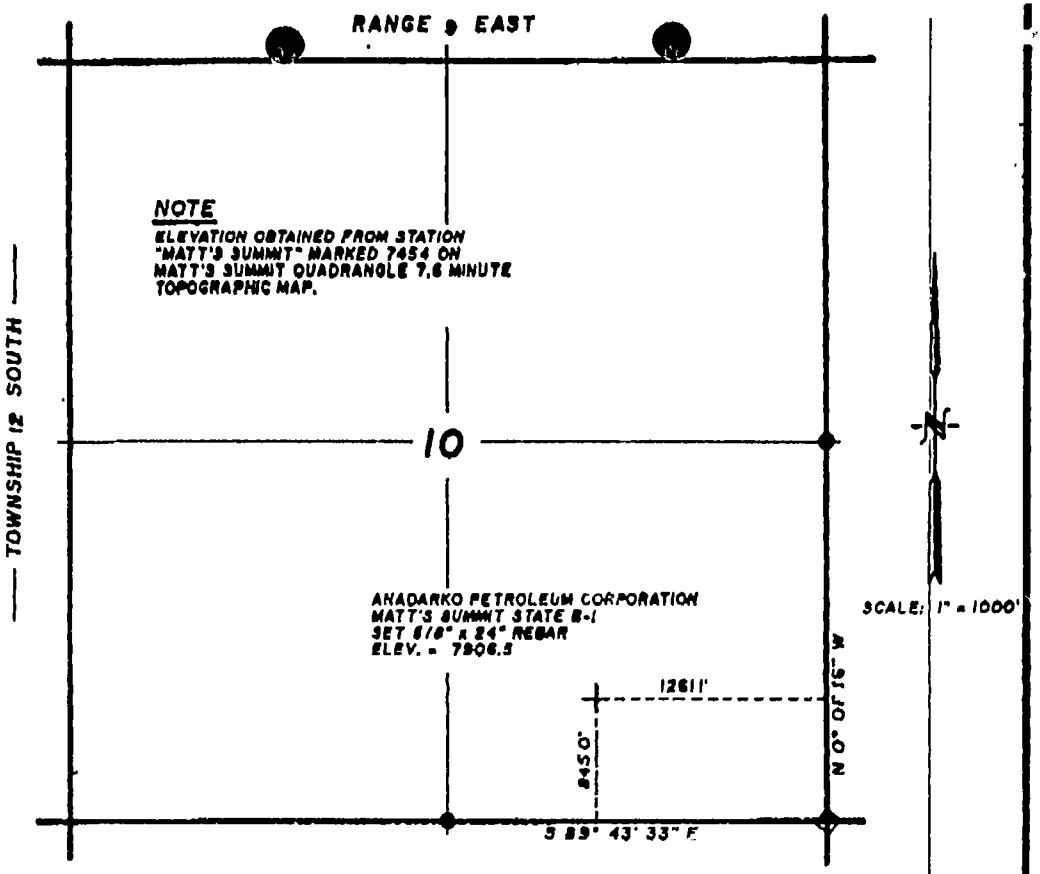
14 I hereby certify that the foregoing is true and correct

Name & Signature: Susan Hathcock (Susan Hathcock) Title: Coordinator, Regulatory Affairs & Safety Date: 4/30/92

(State Use Only)

CONFIDENTIAL

(6/90) See Instructions on Reverse Side



REGISTERED LAND SURVEYOR
NO 3115
EVAN E HANSEN
STATE OF UTAH

REGISTERED PROFESSIONAL ENGINEER
No. 3354
EVAN E. HANSEN
STATE OF UTAH

BASIS OF BEARING

BASIS OF BEARING S 89° 43' W, OBTAINED FROM G.L.O. PLAT DATED OCTOBER 30, 1916 BETWEEN THE NORTHWEST CORNER AND THE NORTH QUARTER CORNER OF SECTION 14, TOWNSHIP 12 SOUTH, RANGE 9 EAST, SALT LAKE BASE AND MERIDIAN.

LEGEND

◇ FOUND BRASS CAP SECTION CORNER

● FOUND BRASS CAP QUARTER CORNER

SURVEYOR'S CERTIFICATE

I, EVAN E. HANSEN, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR AND PROFESSIONAL ENGINEER HOLDING CERTIFICATES NO 3115 AND NO 3354 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT I HAVE MADE A SURVEY OF THE TRACT OF GROUND SHOWN AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

Evan E. Hansen
EVAN E HANSEN

NOV. 29, 1991
DATE

Empire Engineering
1665 E SAGEWOOD RD PRICE, UTAH 84501

ANADARKO PETROLEUM CORPORATION
MATT'S SUMMIT STATE B-1

Drawn By: TH	Approved By: EEH	Drawing No.
Date: 11-29-91	Scale: 1" = 1000'	EEOG-113

ANADARKO PETROLEUM CORPORATION PO BOX 4499 • HOUSTON TEXAS 77210-4499

April 30, 1992

Anadarko

Utah Board of Oil, Gas & Mining
Suite 350, 3 Triad Center
355 West North Temple
Salt Lake City, UT 84180-1203

Attention: Ms. Tammy Searing

RE: Application for Permit to Drill
Matt's Summit State No. B-1

Gentlemen:

Enclosed in duplicate is Form 9, "Sundry Notice" transmitting a copy of the revised location plat for the Matt's Summit State Well No. B-1. Please include this information with the application for permit to drill submitted on April 2, 1992.

Per our telephone conversation, Anadarko does not wish to change the well name. We will make every effort to ensure that all filings on this well have the word "state" in the well name and the correct API number so as not to confuse it with the federal well.

As discussed, a copy of the Environmental Assessment currently being prepared for the Matt's Summit Area will be forwarded to your office as soon as possible. Upon receipt of this report, it is our understanding this permit (as well as those for the federal wells) will be approved.

By copy of this letter, we hereby request all information on this well be held confidential.

If you have any questions or require additional information, please call me at 713/874-8758.

Sincerely,

Susan Hathcock

Susan Hathcock
Coordinator, Regulatory Affairs & Safety

SH:me
Enclosure

cc: Bureau of Land Management
Moab District
P. O. Box 970
Moab, UT 84532

Bureau of Land Management
Price Resource Area
900 North, 700 East
Price, UT 84501

HEITZMAN DRILL-SITE SERVICES

DALE HEITZMAN

ROBERT M ANDERSON

May 5, 1992

Ms. Dianne R. Nielsen, Director
State of Utah
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
Salty Lake City, Utah 84180-1203

RE: Anadarko Petroleum Corporation
Matt's Summit Coalbed Methane Project
Carbon and Utah Counties, Utah

Dear Ms. Nielsen;

Heitzman Drill-Site Services is currently in the process of preparing an Environmental Assessment of six (6) coalbed methane wells and one (1) water injection well proposed by Anadarko Petroleum Corporation in Carbon and Utah Counties, Utah. These seven (7) total wells represent a pilot program for coalbed methane in the Matt's Summit area and, if successful, could result in full field development of the coalbed methane resource within the leasehold/unit area. Full field development would be analyzed under a separate document to be prepared at a later date and would be contingent upon production results obtained from this pilot program.

The seven (7) well locations to be included in this pilot program are as follows:

1. Matt's Summit State B-1 : Coalbed Methane Well
$NW\frac{1}{4}SE\frac{1}{4}SE\frac{1}{4}$, Section 10, T12S, R9E; Carbon County, UT

2. Matt's Summit Federal A-1 : Coalbed Methane Well
$NW\frac{1}{4}SE\frac{1}{4}NE\frac{1}{4}$, Section 15, T12S, R9E; Carbon County, UT

3. Matt's Summit Federal A-2 : Coalbed Methane Well
$NW\frac{1}{4}SE\frac{1}{4}NW\frac{1}{4}$, Section 14, T12S, R9E; Carbon County, UT

4. Matt's Summit Federal B-1 : Coalbed Methane Well
$SW\frac{1}{4}SE\frac{1}{4}SW\frac{1}{4}$, Section 11, T12S, R9E; Carbon County, UT

SUITE 107 OVERLAND PLAZA P O DRAWER 3579 CASPER, WY 82602 (307) 266 4840

5. Matt's Summit State C-1 : Coalbed Methane Well
NW¼SE¼, Section 2, T12S, R9E; Carbon County, UT

6. Matt's Summit Federal B-2 : Coalbed Methane Well
NW¼SW¼NW¼, Section 11, T12S, R9E; Carbon County, UT

7. Emma Park State A-1 : Water Injection Well
NE¼SW¼NE¼, Section 32, T11S, R9E; Utah County UT

For your convenience, I have included a brief "Proposed Action" to acquaint you with the drilling proposal as well as a map showing the location for each of these proposed well locations.

As stated above, this environmental assessment will only address the initial exploration phase of the Matt's Summit Coalbed Methane Project and will be prepared under guidance provided by the Price River Resource Area Office, Bureau of Land Management.

In this regard, I would like to request that your office review this exploration proposal and provide any comments/concerns which your office may have regarding this project and the potential impacts (or benefits) to the State of Utah arising therefrom.

Should you require any additional information or have any questions in this regard, please do not hesitate to give me a call.

Your kind attention to this matter will be most appreciated.

Sincerely,

Robert M. Anderson

RMA/ibm
Enclosure

STATE ACTIONS

Mail to
RDCC Coordinator
116 State Capitol
Salt Lake City, Utah 84114

1 ADMINISTERING STATE AGENCY
OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

2 STATE APPLICATION IDENTIFIER NUMBER:
(assigned by State Clearinghouse)

3 APPROXIMATE DATE PROJECT WILL START:
July 1, 1992

4. AREAWIDE CLEARING HOUSE(s) RECEIVING STATE ACTIONS.
(to be sent out by agency in block 1)
Southeastern Utah Association of Governments

5. TYPE OF ACTION: /_/ Lease /X/ Permit /_/ License /_/ Land Acquisition
/_/ Land Sale /_/ Land Exchange /_/ Other _____

6. TITLE OF PROPOSED ACTION
Application for Permit to Drill

7. DESCRIPTION:
Anadarko Petroleum Corporation proposes to drill the Mad's Summit State B-1 well (wildcat) on state lease ML 37387, Carbon County, Utah. This action is being presented to RDCC for consideration of resource issues affecting state interests. The Division of Oil, Gas and Mining is the primary administrative agency in this action and must issue approval before operations commence.

8. LAND AFFECTED (site location map required) (indicate county)
SW/4, SE/4, Section 10, Township 12 South, Range 9 East, Carbon County, Utah

9. HAS THE LOCAL GOVERNMENT(s) BEEN CONTACTED?

10. POSSIBLE SIGNIFICANT IMPACTS LIKELY TO OCCUR
Degree of impact is based on the discovery of oil or gas in commercial quantities.

11. NAME AND PHONE NUMBER OF DISTRICT REPRESENTATIVE FROM YOUR AGENCY NEAR PROJECT SITE, IF APPLICABLE:

12. FOR FURTHER INFORMATION, CONTACT
Frank R. Matthews
PHONE: 538-5340

13 SIGNATURE AND TITLE OF AUTHORIZED OFFICIAL

Frank R. Matthews

DATE: 5-14-92 Petroleum Engineer

WOI197

FORM 3

STATE OF UTAH
DIVISION OF , GAS AND MINING

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. Lease Designation and Serial No.: ML-37387

6. If Indian, Allottee or Tribe Name:

7. Unit Agreement Name: Matt's Summit

8. Farm or Lease Name: Matt's Summit State

9. Well No.: B-1

10. Field and Pool, or Wildcat: Wildcat

11. QQ, Sec., T., R., M., or Blk. and Survey or Area: SW/SE Sec. 10, T12S, R9E

1a. Type of Work: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. Type of Well: Oil Well [ ] Gas Well [ ] Other Coalbed Methane Single Zone [ ] Multiple Zone [ ]

2. Name of Operator: Anadarko Petroleum Corporation

3. Address of Operator: P. O. Box 4499, Houston, TX 77210-4499

4. Location of Well (Report location clearly and in accordance with any State requirements *)
At surface: 845' FSL & 1261' FEL of Sec. 10 SW/SE
At proposed prod. zone: Same

14. Distance in miles and direction from nearest town or post office*: Approximately 7 miles north of Helper, Utah

12. County or Parrish: Carbon | 13. State: Utah

15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drlg. line, if any): 475'

16. No. of acres in lease: 1429.84

17. No. of acres assigned to this well: 160

18. Distance from proposed location* to nearest well, drilling, completed, or applied for, on this lease, ft: N/A

19. Proposed depth: 5400'

20. Rotary or cable tools: Rotary

21. Elevations (Show whether DF, RT, GR, etc.): GR: 7906.5'

22. Approx. date work will start*: July 1, 1992

23. PROPOSED CASING AND CEMENTING PROGRAM

Size of Hole	Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
12-1/4"	8-5/8"	20#	400'	200 cu.ft.
7-7/8"	5-1/2"	15.5#	5400'	300 cu.ft.

RECEIVED
MAY 15
DIVISION OF
OIL, GAS & MINING

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. I hereby certify that this report is true and complete to the best of my knowledge.

Signed: Susan Hathcock (Susan Hathcock) Title: Coordinator, Regulatory Affairs & Safety Date: 4/2/92

(This space for Federal or State office use)

API NO. Approval Date

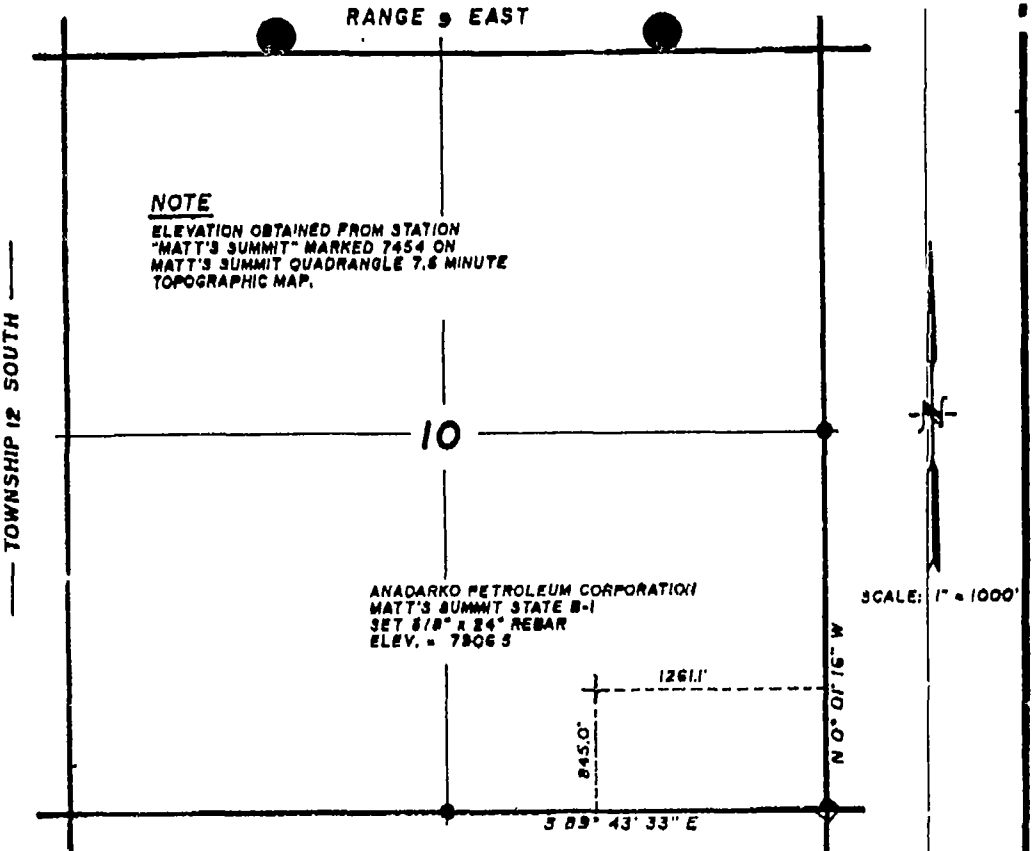
/S/ WILLIAM C STRINGER Assistant District Manager

Approved by Title: for Minerals Date

Conditions of approval, if any:

*See Instructions On Reverse Side

(3/89)



REGISTERED LAND SURVEYOR
NO. 3115
EVAN E HANSEN
STATE OF UTAH

REGISTERED PROFESSIONAL ENGINEER
No. 3334
EVAN E HANSEN
STATE OF UTAH

BASIS OF BEARING

BASIS OF BEARING S 89° 53' W, OBTAINED FROM G.L.O. PLAT DATED OCTOBER 30, 1918 BETWEEN THE NORTHWEST CORNER AND THE NORTH QUARTER CORNER OF SECTION 14, TOWNSHIP 12 SOUTH, RANGE 9 EAST, SALT LAKE BASE AND MERIDIAN.

LEGEND

◇ FOUND BRASS CAP SECTION CORNER

● FOUND BRASS CAP QUARTER CORNER

SURVEYOR'S CERTIFICATE

I, EVAN E. HANSEN, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR AND PROFESSIONAL ENGINEER HOLDING CERTIFICATES NO 3115 AND NO 3334 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT I HAVE MADE A SURVEY OF THE TRACT OF GROUND SHOWN AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

Evan E. Hansen
EVAN E. HANSEN

NOV. 29, 1991
DATE

Empire Engineering		
1665 E SAGEWOOD RD PRICE, UTAH 84501		
ANADARKO PETROLEUM CORPORATION MATT'S SUMMIT STATE B-1		
Drawn By: TH	Approved By EEH	Drawing No. EEOG-113
Date: 11-29-91	Scale: 1" = 1000'	

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

June 22, 1992

Anadarko Petroleum Corporation
P.O. Box 4499
Houston, Texas 77210-4499

Gentlemen:

Re: Matt's Summit State B-1 Well, 845 feet from the south line, 1261 feet from the east line, SE 1/4 SE 1/4, Section 10, Township 12 South, Range 9 East, Carbon County, Utah

Pursuant to Utah Code Ann. § 40-6-18, (1953, as amended), Utah Admin. R. 649-2-3, and Utah R. 649-3-4, approval to drill the referenced well is hereby granted.

In addition, the following specific actions are necessary to fully comply with this approval:

1. Submittal to the Division of evidence providing assurance of an adequate and approved supply of water as required by Utah Code Ann. § 73-3, Appropriations, prior to commencing drilling operations.

2. Reserve pit is to be inspected and evaluated prior to the introduction of fluids into the pit.

3. Compliance with the requirements of Utah Admin. R. 649-1 et seq., Oil and Gas Conservation General Rules.

4. Notification within 24 hours after drilling operations commence.

5. Submittal of Entity Action Form, Form 6, within five working days following commencement of drilling operations and whenever a change in operations or interests necessitates an entity status change.

6. Submittal of the Report of Water Encountered During Drilling, Form 7.

7. Prompt notification prior to commencing operations, if necessary, to plug and abandon the well. Notify Frank R. Matthews, Petroleum Engineer, (Office) (801)538-5340 (Home) (801)476-8613, or R J. Firth, Associate Director, (Home) (801)571-6068.

8. Compliance with the requirements of Utah Admin. R 649-3-20, Gas Flaring or Venting, if the well is completed for production.

Trash and sanitary waste should be properly contained and transported to approved disposal locations, not retained in or disposed of in pits on location or downhole. Prior to the commencement of drilling operations, the operator should consult the local/county sanitarian and/or the Department of Environmental Quality, Division of Drinking Water/Sanitation, regarding appropriate disposal of sanitary waste.

This approval shall expire one year after date of issuance unless substantial and continuous operation is underway or a request for an extension is made prior to the approval expiration date. The API number assigned to this well is 43-007-30155

Sincerely,

R.J. Firth
Associate Director, Oil and Gas

ldc
Enclosures
cc: Bureau of Land Management
State Lands and Forestry
J.L. Thompson
WOI1

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

RECEIVED
JUL 0 8 1992
DIVISION OF
OIL, GAS & MINING

July 1, 1992

Dr. Dianne R. Nielson, Director
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180

Dear Dianne:

This letter is in response to four applications for permits to drill (APD's) in the Matts Summit area of Carbon County. The APD's are for Matts Summit State B-1 well, Matts Summit Federal B-1 well, Matts Summit Federal A-2 well and Matts Summit Federal A-1 well.

Inclosed is a letter dated April 21, 1992, to Mr. Robert Anderson, consultant for Heitzman Drill-Site Services, who is preparing an environmental assessment for Anadarko Petroleum Corporation's Matts Summit Coalbed Methane Project. The letter outlines the Division of Wildlife Resources' concerns and recommendations regarding this project. The issues and recommendations found in the letter should be considered as these APD's are reviewed. We are particularly concerned with the cumulative impacts to wildlife of this project and Cockrell Oil's methane project in this same area. The impacts of these two projects represent a significant alteration of critical wildlife habitat. Such impacts should be considered and addressed.

We appreciate the opportunity to provide input on these applications. We will also be working with the Bureau of Land Management as they complete the NEPA process for this project. If you have any questions regarding our comments, please contact Ken Phippen, Regional Habitat Manager (637-3310).

Sincerely,

Timothy H. Provan
Director

Enclosure

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The proposed action involves the drilling, completion and evaluation of six additional (6) coalbed methane wells and one (1) water injection well at surface locations as shown below:

1. Matt's Summit State B-1 : Coalbed Methane Well
   NW¼SE¼SE¼, Section 10, T12S, R9E; Carbon County, UT

2. Matt's Summit Federal A-1 : Coalbed Methane Well
   NW¼SE¼NE¼, Section 15, T12S, R9E; Carbon County, UT

3. Matt's Summit Federal A-2 : Coalbed Methane Well
   NW¼SE¼NW¼, Section 14, T12S, R9E; Carbon County, UT

4. Matt's Summit Federal B-1 : Coalbed Methane Well
   SW¼SE¼SW¼, Section 11, T12S, R9E; Carbon County, UT

5. Matt's Summit State C-1 : Coalbed Methane Well
   NW¼SE¼, Section 2, T12S, R9E; Carbon County, UT

6. Matt's Summit Federal B-2 : Coalbed Methane Well
   NW¼SW¼NW¼, Section 11, T12S, R9E; Carbon County, UT

7. Emma Park State A-1 : Water Injection Well
   NE¼SW¼NE¼, Section 32, T11S, R9E; Utah County UT

Considering that the exploration for, development, and production of coalbed methane gas is a radically different technology from conventional natural gas wells, it is essential to gather preliminary information on the coal seam(s) prior to undertaking extensive and/or expensive development thereof.

In this regard, drilling of the six (6) exploratory well locations listed above is necessary in order to provide the following baseline data:

1. coal thicknesses in the drilling area,

2. volumetric gas content of these coals,

3. BTU content of the methane gas contained therein,

4. length of time required to dewater the coal(s) and initiate gas desorption therefrom,

2.1 Proposed Action - Continued

5. relative volume(s) of water which must be removed per well prior to the onset of gas desorption,

6. quality of the water produced from the coal seam(s), and

7. potential gas production (volumetric) from the target coal seam(s) once desorption has peaked.

Once these parameters have been more accurately defined, a decision can be made as to the commercial feasibility of additional development of the coalbed methane resource in this area.

Of these six (6) exploratory well locations, four (4) are situated on federally owned surface estate, one (1) is owned by the State of Utah and the remaining location is situated on privately owned surface estate, as shown in Table 1-1, below.

Table 1-1

Surface Ownership of Proposed Well Locations

Well Name	Surface Ownership
State B-1	Park Ventures
Federal A-1	United States of America (BLM)
Federal A-2	United States of America (BLM)
Federal B-1	United States of America (BLM)
State C-1	Jerry, James and Dix Jensen
Federal B-2	United States of America (BLM)

The proposed water injection well is located on privately-owned surface estate belonging to: Norma Jeanne Moynier et al.

2.1.1 Construction Operations

The leveled (pad) area required for each of the seven (7) well locations for drilling, completion and initial evaluation operations will be approximately 1.56 acres in size. The total surface disturbance resulting from construction of all seven (7) well locations (including areas of cut, fill and topsoil/subsoil storage) will equal approximately 25.33 acres, for an average of 3.62 acres/well location.

In addition, approximately 2.25 miles of new access road construction will be required for access to these seven (7) proposed well locations, for an average of 0.32 miles of road construction per well location. Considering a total disturbed right-of-way (ROW) width not to exceed thirty (30) feet, this road construction would result in approximately 8.20 acres of additional surface disturbance, equal to approximately 1.17 acres of new road construction per well location.

2.1.2 Drilling Operations

Drilling operations on these wells should require no more than twenty-one (21) days per well location from the time the drilling rig is moved onto the well location and rigged up until such time as the hole has been drilled, casing set and the rig moved off of the location.

The actual drilling operation will utilize a water- based mud system with non-hazardous additives for lost circulation, hole stabilization and/or hole conditioning prior to logging and/or running casing. Basically, this system involves drilling with water and utilizing additives (such as bentonite) to prevent hole collapse in water sensitive formations (shales).

Upon completion of the drilling operation, production casing is set to total depth and cemented back to surface, isolating all formations in the hole, which effectively eliminates any possibility for fluid communication between potential hydrocarbon bearing zones and any fresh water aquifers which may be encountered in the hole.

2.1.3 Completion Operations

Once the well has been drilled and cased, a work-over unit is moved onto the well location and completion operations are commenced which generally require an average of five (5) days per well location. This completion operation consists of cleaning out the hole, logging, pressure testing the casing and perforating the targeted horizons in the coal seam downhole.

After the casing has been perforated, production tubing is run and the well is flow tested for initial water/gas production rates. Based upon the initial performance of the well, a decision may be made to fracture (frac) the coal seam(s) with a mixture of sand and gelled water. As the formation is fractured, the resulting fissures (fractures) are filled with sand which props open these fissures, thereby facilitating the flow of water and/or gas into the well bore.

After completion operations, the well will be placed on pump with pumping operations continuing until such time as a proper evaluation of the coalbed methane reservoir has been obtained (estimated six (6) months, minimum).

2.1.4 Evaluation Operations

Generally speaking, methane gas within the coal bed is held in place by pressure from water contained in fractures within the coal seam. Mechanical pumping removes this water, lowering the formation pressure, and thus allowing the gas to "desorb" from the coal. An evaluation of the actual volume(s) of water removed from these exploratory wells prior to commencement of desorption coupled with the resultant desorption rates can be extrapolated to calculate the commercial feasibility of additional development including potential well densities required to accomplish economic recovery of the coalbed methane resource.

As the coal is dewatered, desorption will occur and methane gas will commence flowing to the surface. Typically, there is an inverse relationship between water and gas production, with water volumes tending to decrease over time as the coal is dewatered, while gas volumes tend to increase as the water is removed from the formation. Eventually, an equilibrium will be reached at which point maximum gas desorption will occur in association with diminished water production. However, this equilibrium can only be maintained as long as the well remains on pump.

2.1.4 Evaluation Operations - Continued

Should the well be "shut-in" for any period of time, the coal will recharge with water resulting in a loss of gas production therefrom.

2.1.5 Disposal of Produced Water

Initially, Anadarko proposes to dispose of waters produced from these wells through underground injection. Subsurface injection of produced water would be in strict accordance with Underground Injection Control (UIC) rules and regulations.

As an alternative to subsurface disposal, Anadarko Petroleum Corporation would consider reserve osmosis for treatment of the produced water stream, discharge of the treated water and re-injection of the concentrate. Surface water discharge would be regulated under an NPDES (National Pollutant Discharge Elimination System) permit (to be issued by the State of Utah), in conjunction with an NTL-2B (Notice to Lessees Number 2B) application (to be issued by the Price River Resource Area Office, Bureau of Land Management).

Issuance of these permits for the surface discharge of produced waters would be contingent upon the water meeting pre-established minimum criteria for quality and would include a rigorous testing regimen to insure that the discharged water continues to meet the minimum standards established by the Environmental Protection Agency for surface discharges.

2.1.6 Pipelines

During the initial dewatering phase of operations, the need for a pipeline to transport gas will not be necessary as only minimal quantities of gas will be produced. Gas produced during this initial evaluation phase of operations will be vented to the atmosphere under authority from both the State of Utah and the Bureau of Land Management.

Buried pipelines would be required for transport of produced water to the disposal/treatment facility and would be installed adjacent to the existing access road right-of-ways.

2.1.6 Pipelines - Continued

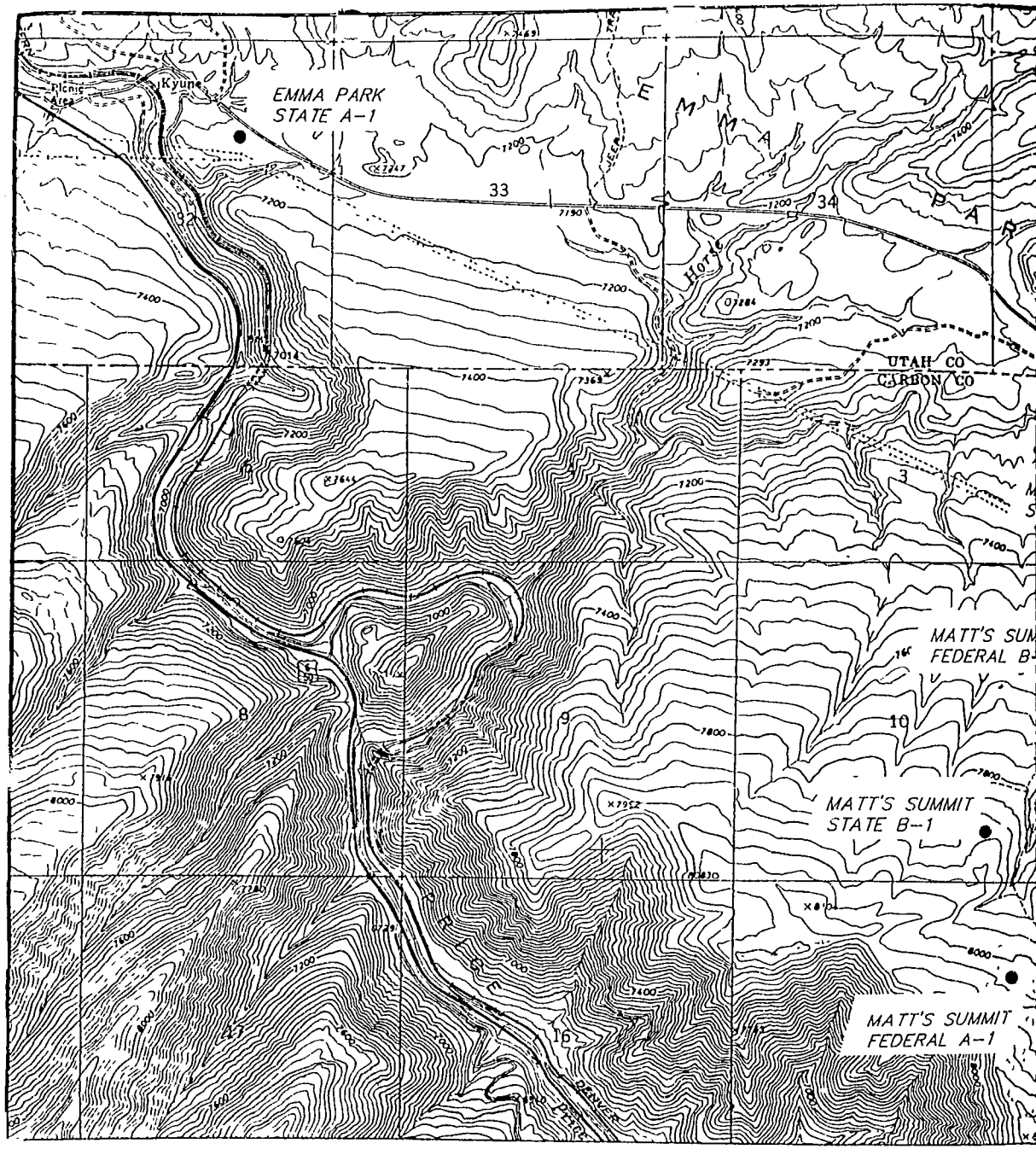
These pipelines would be buried to an average minimum depth of four (4) feet below the natural ground level in order to prevent freeze-up during the winter months and potential damage from surface activities. Considering a disturbed right-of-way (ROW) width not to exceed fifteen (15) feet, installation of these subsurface pipelines will result in approximately 1.82 acres of surface disturbance per mile of pipeline.

2.1.7 Abandonment

As a result of this evaluation program, Anadarko Petroleum Corporation will ultimately make a decision as to the commercial feasibility of developing the coalbed methane resource within the leasehold. If the decision is made to abandon the project, all above ground facilities would be removed from the well locations and the existing well bore(s) would be physically plugged with cement in accordance with requirements of the appropriate regulatory agencies.

Upon completion of plugging operations, both the abandoned well location and attendant access road will be reclaimed according to the requirements of the appropriate surface management agency and/or each respective private surface owner.

If commercial production is obtained from these well locations, we could reasonably expect production to occur over a fifteen (15) to thirty (30) year period. As wells become non-productive, they will be plugged, abandoned and reclaimed as described above.

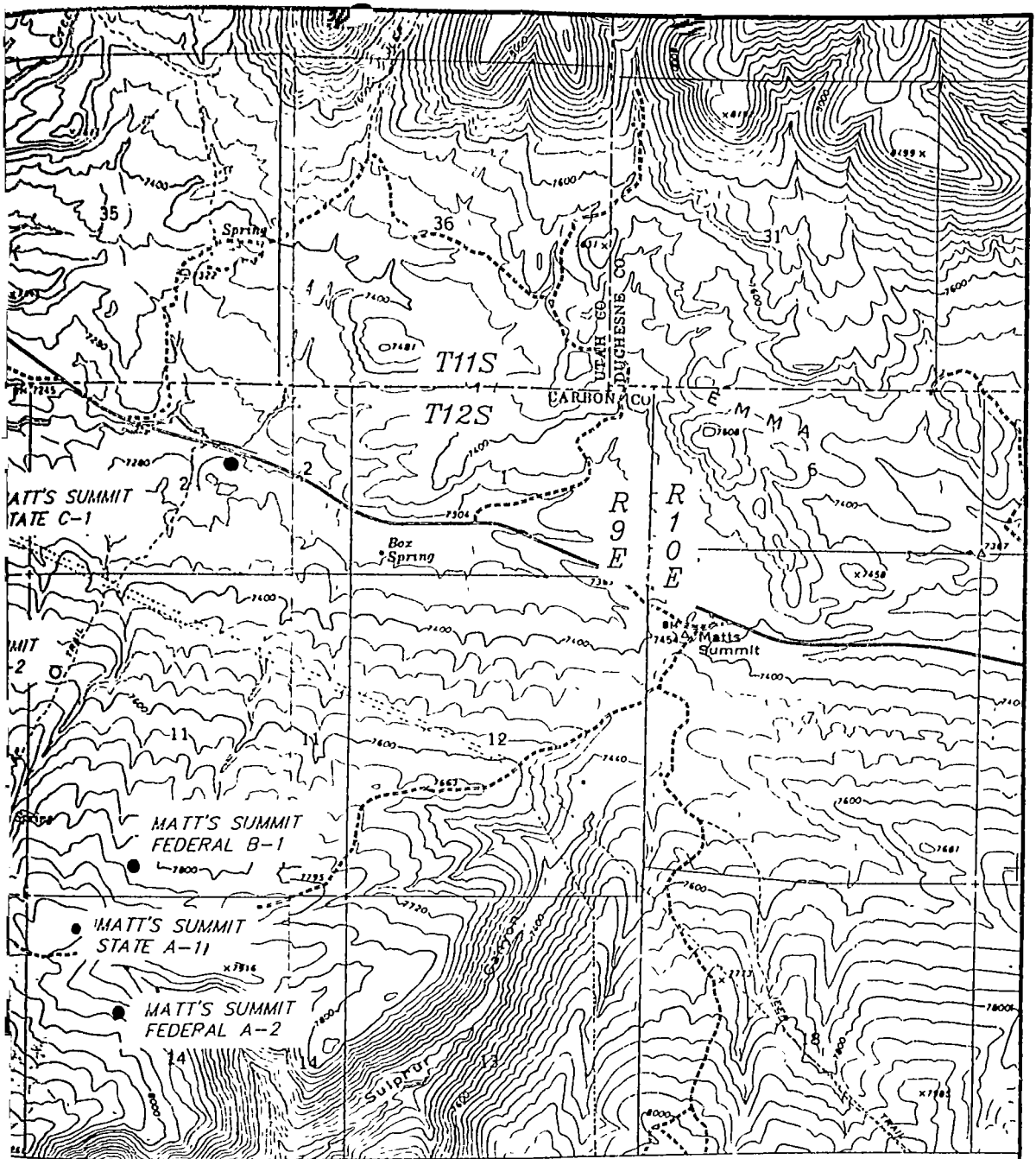


TOPOGRAPHIC

MAP

SCALE 1" = 2000

N



ANADARKO PETROLEUM CORPORATION

MATT'S SUMMIT UNIT AREA

T11S, R9E, & T12S, R9F, S L B &M

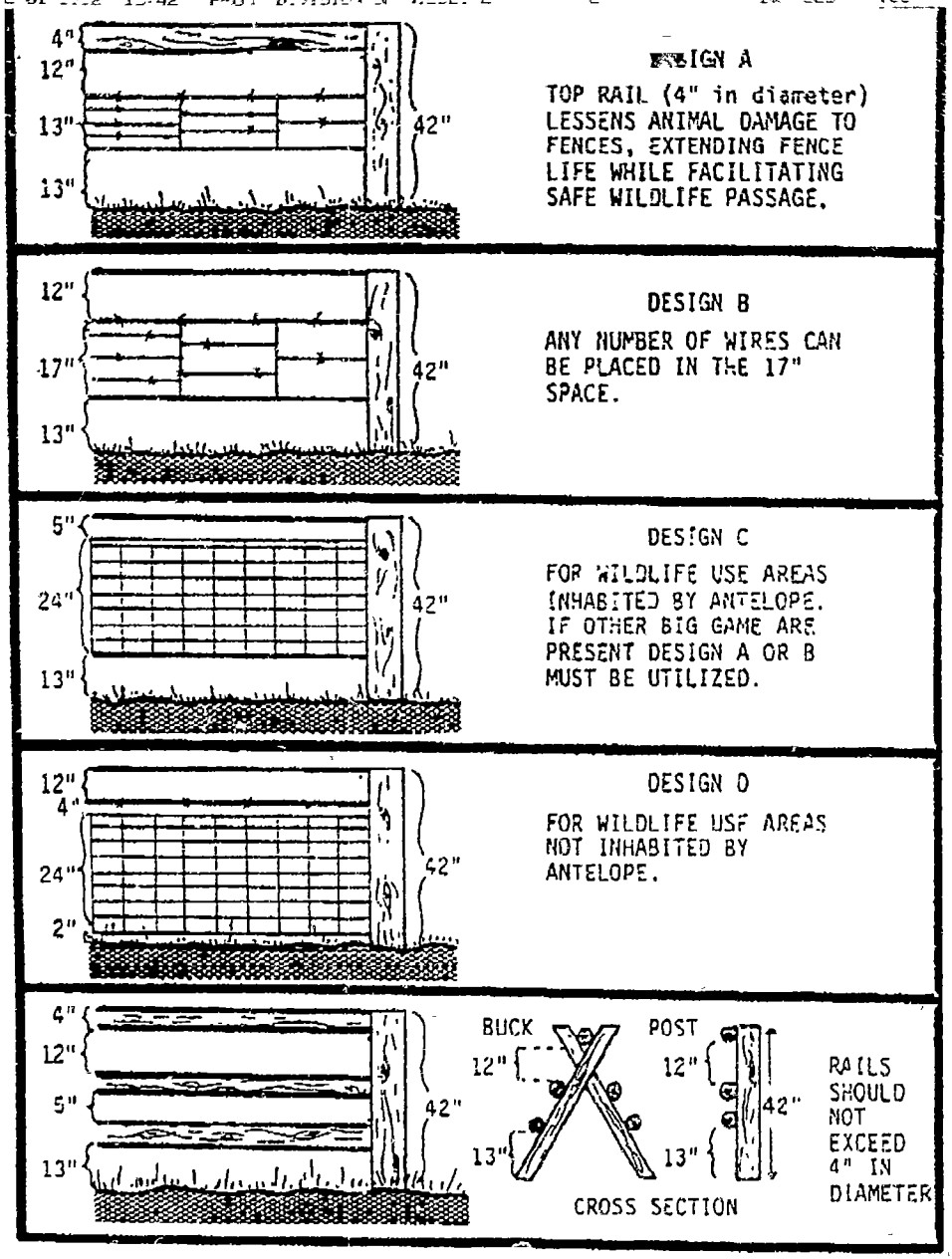


FIGURE F5. Fence specifications for containing livestock while allowing big game passage. Total fence height must not exceed 42". The space between the two top wires should be at least 12" to allow passage of juvenile big game; a smooth top wire is needed. The bottom wire should be at least 13" from the ground and smooth to allow big game to crawl beneath, particularly antelope.

Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

A. Seedbed Preparation: (1) Disturbed areas should be double ripped. (2) Fertilizer (0-16-8) at a rate of 100 lb/acre should be disked into the topsoil mass prior to seeding. (3) Where possible, the grass segment of the seed mix should be drilled. The remainder of the seed mix should be hydroseeded in a slurry containing tackifier (60 lb/acre) and wood fiber mulch (400 lb/acre). Seed mix applied by hydrospray technique should be increased by 1.5 times. This first application containing seed should be immediately followed by another hydroseeded slurry to incorporate more tackifier (60 lb/acre), more wood fiber mulch (2,000 lb/acre), and nitrogen fertilizer (33-0-0 distributed at a rate of 100 lb/acre). (3a) If a hydrospray technique is not utilized, the seed mix should be drilled. (3b) If broadcast, the seed mix should be doubled, spread, and covered through use of a harrow or chain. (4) After seed application (3a or 3b), nitrogen fertilizer (33-0-0 distributed at a rate of 100 lb/acre) should be broadcast and an acceptable mulch should be applied at a rate of 2,000 lb/acre to protect raw soil from erosion and to conserve moisture. Mulch should be held in place by tackifying, crimping, or netting. (5) Seeding should occur following a permanent killing frost which is usually after October 1.

B. Nursery Stock or Transplants: Planting of nursery or transplant stock should occur in spring when soil moisture is greatest. Nursery stock should be planted after dormancy breaks; greatest success for transplant stock is achieved during dormancy. Shoots spaced 2, 3, 4, 6, 10, 12, 13, and 15 feet apart will achieve 10868, 4840, 2722, 1210, 436, 302, 258, and 195 plants per acre, respectively. A 60% canopy cover is the goal. All plantings need to have soil compacted around the roots.

C. Cuttings of Woody Riparian Species (willow, cottonwood, etc.): Cut stems at a length of 12 to 18 inches from 1-3 year old wood, with stock (0.5 to 1.0 inch diameter) with a 30-45° angle on basal end. Lateral branches and leaves must be removed. Cuttings can be immediately transplanted or if cut in winter cold stored in snow filled bags until the ground thaws. The basal end can be dipped in indolebutyric acid prior to planting to aid in root formation. When planting, all but one inch of the stem should be extended into the moist soil to a depth of the water table. This will protect recreators from inadvertent injury. Dormant logs (1.5 to 6 inches diameter and up to 20 feet long) can also be used for many species as long as the water table is reached.

D. Bare-root or Containerized Plants: Prior to planting, bare-root or containerized plants should be stored at 34-39° F for one week to "harden". Planting should be in an adequately sized hole to insure that roots are well distributed and extending full length into the hole. For bare-root and containerized stock, care needs to be taken that the root hairs are not allowed to dry. The outer edge of the root mass for containerized stock should be scarified to alleviate root binding.

E. Plugs: Plugs of vegetation can be excavated with a shovel or front-end loader. They should be handled such that moist soil remains packed firmly around the roots. A similar sized hole needs to be excavated and the plug planted.

F. Rhizomic Plants: Woody plants with interconnected root stock should be located and excavated intact. The tops of plants should be removed so that only one remains. Connecting roots should be aligned vertically and buried. In the instance of herbaceous plants, rhizomes can be harvested with a front-end loader, and distributed with a manure spreader. A one inch layer of top soil should be compacted over plantings.

Table 5. Revegetation prescription for disturbed areas within the ASPEN ecosystem in the MONTANE ecological association.[1,7]

Plant Material	Pounds of Pure Live Seed/Acre
GRASS SPECIES[2]:	
Mountain brome (*Bromus marginatus*)	2.0
Smooth brome (*Bromus inermis*)	1.0 (southern variety)
Paiute orchardgrass (*Dactylis glomerata*)	0.5
Intermediate wheatgrass (*Agropyron intermedium*)	1.0
Kentucky bluegrass (*Poa pratensis*)	0.2
Meadow foxtail (*Alopecurus pratensis*)	0.5
FORB SPECIES[3]:	
Alfalfa (*Medicago sativa*)	1.0 (Ladak, Nomad, Spreader)
Porter licoriceroot (*Ligusticum porteri*)	1.0
Rockymountain penstemon (*Penstemon strictus*)	0.5
Silky lupine (*Lupinus sericeus*)	1.0
Pacific aster (*Aster chilensis*)	0.2
Sweet anise (*Osmorhiza occidentalis*)	1.0
SHRUB AND TREE SPECIES[4]:	
Antelope bitterbrush (*Purshia tridentata*)	0.5
Mountain snowberry (*Symphoricarpos oreophilus*)	2.0
Mountain big sagebrush (*Artemisia tridentata vaseyana*)[6]	0.25 ([illegible] purity)
Silver sagebrush (*Artemisia cana viscidula*)[6]	0.1 ([illegible] purity)
Woods rose (*Rosa woodsii*)	1.0
Red elderberry (*Sambucus racemosa*)	1.0 (uncleaned)
TOTAL	15.35
NURSERY OR TRANSPLANT STOCK[5]:	STEMS/ACRE (SPACING)
Quaking aspen (*Populus tremuloides*)	1,210 per acre (6 ft. apart)
Bigtooth maple (*Acer saccharum grandidentatum*)	436 per acre (10 ft. apart)
Mountain ash (*Sorbus scopulina*)	436 per acre (10 ft. apart)

[1] Note attachment: Recommended guidelines for seedbed preparation and planting technique in the MONTANE ecological association.

[2] Alternate grass species: Basin wildrye (*Elymus cinereus*), Bearded wheatgrass (*Agropyron trachycaulum*), Thurber fescue (*Festuca thurberi*), Foxtail barley (*Hordeum jubatum*)

[3] Alternate forb species: Gray aster (*Aster glaucodes*), Showy goldeneye (*Viguiera multiflora*), Cicer milkvetch (*Astragalus cicer*), Lambstongue groundsel (*Senecio integerrimus*), American vetch (*Vicia americana*), Mountain goldenrod (*Solidago multiradiata* - collected)

[4] Alternate shrub and tree species: Shrubby cinquefoil (*Potentilla fruticosa*), Saskatoon serviceberry (*Amelanchier alnifolia*), Wax currant (*Ribes cereum*), White rubber rabbitbrush (*Chrysothamnus nauseosus hololeucus*)[6], Blue elderberry (*Sambucus cerulea*), Bigtooth maple (*Acer saccharum grandidentatum*)

[5] Alternate nursery or transplant stock: Willow (*Salix* spp.), Rocky mountain maple (*Acer glabrum*)

[6] This species should not be covered. It should be hydrosprayed in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch.

[7] For regeneration of aspen stands it is recommended that remnant aspen clones be ripped with a chisel toothed tool to break up the rhizomatous structures. This should stimulate adventitious sprouting of aspen from the rhizomes.

Table 1. Revegetation prescription for disturbed areas within the RIPARIAN WETLAND ecosystem in the MONTANE ecological association.[1]

Plant Material		Pounds of Pure Live Seed/Acre
GRASS SPECIES[2]:		
Reed canarygrass (*Phalaris arundinacea*)		0.5
Timothy (*Phleum pratense*)		0.5
Kentucky bluegrass (*Poa pratensis*)		0.2
Regar brome (*Bromus biebersteinii*)		1.0
Meadow fescue (*Festuca pratensis*)		1.0
Basin wildrye (*Elymus cinereus*)		1.0
Streambank wheatgrass (*Agropyron dasystachyum riparium*)		1.0
FORB SPECIES[3]:		
Strawberry clover (*Trifolium fragiferum*)		1.0
Richardson geranium (*Geranium richardsonii*)		1.0
Pacific aster (*Aster chilensis*)		0.2
Western yarrow (*Achillea millefolium lanulosa*)		0.1
Silky lupine (*Lupinus sericeus*)		1.0
Showy goldeneye (*Heliomeris multiflora*)		1.0
SHRUB AND TREE SPECIES[4]:		
Silver sagebrush (*Artemisia cana*)[6]		0.5
Blue elderberry (*Sambucus cerulea*)		2.0 (uncleaned)
Red raspberry (*Rubus idaeus*)		1.0
Woods rose (*Rosa woodsii*)		1.0
	TOTAL	14.0
NURSERY OR TRANSPLANT STOCK[5]:		STEMS/ACRE (spacing)
Willow (*Salix* spp.)		1,210 (6 ft. apart) placed at high water line
Narrowleaf cottonwood (*Populus angustifolia*)		436 (10ft. apart) evenly distributed
Thinleaf alder (*Alnus incana occidentalis*)		436 (10 ft. apart) evenly distributed
Beaked sedge (*Carex rostrata*)		10,890 (2 ft. apart) plugs cut from local stock and planted in moist areas

[1]See attachment: Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

[2]Alternate grass species: Sheep fescue (*Festuca ovina*), Rough stalked bluegrass (*Poa trivialis*), Smooth brome (*Bromus inermis* - northern variety), Intermediate wheatgrass (*Agropyron intermedium*)

[3]Alternate forb species: Idaho licoriceroot (*Ligusticum tenuifolium*), Mountain bluebells (*Mertensia ciliata* - collected), Wasatch penstemon (*Penstemon cyananthus*), Strawberry clover (*Trifolium fragiferum*)

[4]Alternate shrub and tree species: Currant (*Ribes* spp.), Common chokecherry (*Prunus virginiana*), Raspberry (*Rubus* spp.), Red elderberry (*Sambucus racemosa*)

[5]Alternate nursery or transplant stock: Water birch (*Betula occidentalis*), Red-osier dogwood (*Cornus stolonifera*) Mountain sedge (*Carex scopulorum*)

[6]This species should not be covered. It should be hydrosprayed in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch.

Table 1. Revegetation prescription for disturbed areas within the SAGEBRUSH/GRASS ecosystem in the MONTANE ecological association.[1]

Plant Material	Pounds of Pure Live Seed/Acre
GRASS SPECIES[2]:	
Intermediate wheatgrass (Agropyron intermedium)	1.0
Slender wheatgrass (Agropyron trachycaulum)	2.0
Hard sheep fescue (Festuca ovina)	0.5
Regar brome (Bromus biebersteinii)	1.0
Kentucky bluegrass (Poa pratensis)	0.2
Paiute orchardgrass (Dactylis glomerata)	0.5
FORB SPECIES[3]:	
Alfalfa (Medicago sativa)	1.0 (Ranger, Nomad, Spreader)
Northern sweetvetch (Hedysarum boreale)	1.0
Common sainfoin (Onobrychis viciifolia)	1.0
Pacific aster (Aster ciliolatus)	0.2
Eaton penstemon (Penstemon eatonii)	0.5
Rocky mountain penstemon (Penstemon strictus)	0.5
SHRUB AND TREE SPECIES[4]:	
Mountain big sagebrush (Artemisia tridentata vaseyana)[5]	0.25 (25% purity)
Basin big sagebrush (Artemisia tridentata tridentata)	0.25
Mountain snowberry (Symphoricarpos oreophilus)	1.0
Wax currant (Ribes cereum)	1.0
TOTAL	11.9

NURSERY OR TRANSPLANT STOCK[6]:	STEMS/ACRE (SPACING)
Shrubby cinquefoil (Potentilla fruticosa)	Plant 544 of each species per acre
Wax currant (Ribes cereum)	randomly spaced 4 feet apart to
Mountain snowberry (Symphoricarpos oreophilus)	reach a goal of 2,132 stems/acre.

[1]Note attachment: Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

[2]Alternate grass species: Bluebunch wheatgrass (Agropyron spicatum), Thickspike wheatgrass (Agropyron dasystachyum), Pubescent wheatgrass (Agropyron intermedium trichophorum), Smooth brome (Bromus inermis- southern variety)

[3]Alternate forb species: Oneflower sunflower (Helianthella uniflora), Palmer penstemon (Penstemon palmeri), Cicer milkvetch (Astragalus cicer), Silky lupine (Lupinus sericeus), Porter ligusticum (Ligusticum porteri)

[4]Alternate shrub and tree species: American bitterbrush (Purshia tridentata), Saskatoon serviceberry (Amelanchier alnifolia), Gooseberry currant (Ribes montigenum)

[5]Alternate nursery or transplant stocks: Antelope bitterbrush (Purshia tridentata), Utah serviceberry (Amelanchier utahensis), Squaw-apple (Peraphyllum ramosissimum), Greenleaf manzanita (Arctostaphylos patula), Basin big sagebrush (Artemisia tridentata tridentata)

[6]This species should not be covered. It should be hydroseeded in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch.

State of Utah
DEPARTMENT OF NATURAL RESOURCES
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February 14, 1994

Anadarko Petroleum Corporation
P. O. Box 4499
Houston, Texas 77210-4499

Re: Application for Permit to Drill
Well No. Matt's Summit State B-1
SWSE, Sec. 10, T. 12S, R. 9E.
Carbon County, Utah
API No. 43-007-30155

Dear Sirs:

Your referenced application submitted for approval was approved January 31, 1990. In accordance with R649-3-4-4, the Division rescinds its approval of the referenced application.

In order to drill this well in the future, a new application will have to be submitted.

Yours truly,

Frank Matthews

Frank Matthews
Petroleum Engineer

cc: R.J. Firth
State Lands and Forestry
Well file